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QUALCOMM INCORPORATED
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EXAMINER

DEAN, RAYMOND S

ART UNIT PAPER NUMBER

2618

DATE MAILED: 11/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/625,167

Applicant(s)

SCHIFF ET AL.

Examiner

Raymond S. Dean

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed September 14, 2006 regarding Claims 1, 20 – 21, 37 – 38, and 48 – 49 have been fully considered but they are not persuasive.

Examiner respectfully disagrees with Applicants' assertion on Page 13 "Patterson does not teach nor suggest the claimed feature of adjusting a data rate for ...". The bit rate or data rate is reduced or adjusted to compensate for the degradation in the link, which reads on the limitation in question.

Examiner respectfully disagrees with Applicants' assertion on Page 16, Second Paragraph "With respect to dependent claims 20, 37, and 48, Patterson does not teach the claimed features of comparing ...". The carrier, in Patterson, will be modulated with an information signal, which is transmitted at a particular data rate, thus providing a signal with a particular bandwidth. Each data rate will therefore correspond to a particular data-rate-to-carrier-bandwidth-ratio. In order to maintain link availability there will be a data-rate-to-carrier-bandwidth threshold that will need to be met thus there will be comparisons between the current data-rate-to-bandwidth, which is a part of the current link conditions, and said threshold.

Examiner also respectfully disagrees with Applicants' assertion on Page 14, 4th Paragraph "Patterson does not teach the claimed features of a messaging time slot ...". TDMA systems comprise a periodically recurring time slots during which a message is

transmitted thus Patterson, when applying the broadest reasonable interpretation, reads on the limitation in question.

2. Applicant's arguments, see remarks filed September 14, 2006 with respect to the rejection(s) of claim(s) 15 – 16, 18 – 19, 32 – 33, 35 – 36, 45 – 47, and 57 – 59 under 35 U.S.C. 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art Xie et al. (US 6,781,978).

Xie teaches a time slotted wireless system comprising the following features: suspending the message if a current messaging time slot in a current time frame expires before the message is complete; and resuming the message in a subsequent messaging time slot in a subsequent time frame (Cols. 4 lines 43 – 67, 5 lines 1 – 13), resuming the message at a beginning of the subsequent messaging time slot in the subsequent time frame (Cols. 4 lines 43 – 67, 5 lines 1 – 13), determining that the message will span more than a particular number of durations of a messaging time slot; and transmitting the message beyond an end of a messaging time slot in a particular frame until the message is complete (Cols. 4 lines 43 – 67, 5 lines 1 – 13), comparing a duration of the message at the current data rate to a length threshold, said length threshold comprising the particular number of durations (Cols. 4 lines 43 – 67, 5 lines 1 – 13). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Patterson with the features of Xie for the

Art Unit: 2618

purpose of minimizing message collisions without degrading channel utilization efficiency as taught by Xie.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 – 2, 10 – 14, 21, 26 – 31, 38, 43 – 44, 48 – 49, and 55 – 56 are rejected under 35 U.S.C. 102(e) as being anticipated by Patterson et al. (US 2003/0050008).

Regarding Claims 1, 21, Patterson teaches a method comprising: identifying a change in a return link signal quality at a gateway for a return link from a terminal communicatively coupled to the gateway through a satellite, said return link being shared by a plurality of terminals having an interference relationship (Sections: 0100 – 0101); and adjusting a data rate for a message sent from the terminal through the return link based on the change in the return link signal quality without changing the interference relationship among the plurality of terminals (Sections: 0100 – 0101).

Regarding Claim 38, Patterson teaches an apparatus comprising: a comparator identifying a change in a return link signal quality at a gateway for a return link from a

Art Unit: 2618

terminal communicatively coupled to the gateway through a satellite, said return link being shared by a plurality of terminals having an interference relationship (Sections: 0100 – 0101); and a data rate generator adjusting a data rate for a message sent from the terminal through the return link based on the change in the return link signal quality without changing the interference relationship among the plurality of terminals (Sections: 0100 – 0101).

Regarding Claim 49, Patterson teaches a machine readable medium having stored thereon machine executable instructions (Section 0027, the user terminal, satellite, and gateway all comprise processors that control the functions of said user terminal, satellite, and gateway, said processors run program code or machine executable instructions that are stored in memory) that when executed implement a method comprising: identifying a change in a return link signal quality at a gateway for a return link from a terminal communicatively coupled to the gateway through a satellite, said return link being shared by a plurality of terminals having an interference relationship (Sections: 0100 – 0101); and adjusting a data rate for a message sent from the terminal through the return link based on the change in the return link signal quality without changing the interference relationship among the plurality of terminals (Sections: 0100 – 0101).

Regarding Claim 2, Patterson teaches all of the claimed limitations recited in Claim 1. Patterson further teaches wherein identifying the change and adjusting the data rate are performed substantially at the same time by both a transmitter of the message and a receiver of the message (Section 0101).

Regarding Claims 10, 26, 30, 43, 55 Patterson teaches all of the claimed limitations recited in Claims 1, 21, 38, and 49. Patterson further teaches transmitting a bit of the message for a longer duration of time to reduce the data rate; and transmitting a bit of the message for a shorter duration of time to increase the data rate (Sections: 0101, 0103, lower data rates comprise transmitting bits for a longer duration and higher data rates comprise transmitting bits for a shorter duration).

Regarding Claims 11, 27, Patterson teaches all of the claimed limitations recited in Claims 1, 21. Patterson further teaches applying a higher coding rate to bits of the message to increase the data rate; and applying a lower coding rate to bits of the message to reduce the data rate (Section 0101).

Regarding Claims 12, 28, Patterson teaches all of the claimed limitations recited in Claims 11, 27. Patterson further teaches transmitting a bit of the message for a longer duration of time to reduce the data rate; and transmitting a bit of the message for a shorter duration of time to increase the data rate (Sections: 0101, 0103, lower data rates comprise transmitting bits for a longer duration and higher data rates comprise transmitting bits for a shorter duration).

Regarding Claims 13, 29, 31, 56 Patterson teaches all of the claimed limitations recited in Claims 1, 21, 49. Patterson further teaches adjusting the data rate to one of a set of discrete data-rate-to-carrier-bandwidth ratios (Sections: 0101, 0103, the carrier will be modulated with an information signal, which is transmitted at a particular data rate, thus providing a signal with a particular bandwidth, each data rate will therefore correspond to a particular data-rate-to-carrier-bandwidth-ratio).

Art Unit: 2618

Regarding Claim 14, Patterson teaches all of the claimed limitations recited in Claim 1. Patterson further teaches code division multiple access (CDMA) channel (Section 0100).

Regarding Claim 44, Patterson teaches all of the claimed limitations recited in Claim 38. Patterson further teaches encoding a bit of the message at a higher coding rate to reduce the data rate; and encode a bit of the message at a lower coding rate to increase the data rate (Section 0101).

Regarding Claim 48, Patterson teaches all of the claimed limitations recited in Claim 38. Patterson further teaches comparing a current data-rate-to-bandwidth ratio for the message to a threshold data-rate-to-bandwidth ratio (Sections: 0100 – 0101, 0103, the carrier will be modulated with an information signal, which is transmitted at a particular data rate, thus providing a signal with a particular bandwidth, each data rate will therefore correspond to a particular data-rate-to-carrier-bandwidth-ratio, in order to maintain link availability there will be a data-rate-to-carrier-bandwidth threshold that will need to be met thus there will be comparisons between the current data-rate-to-bandwidth, which is a part of the current link conditions, and said threshold).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 – 9, 22 – 25, 39 – 42, and 50 – 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (US 2003/0050008) in view of Kim et al. (US 6,925,113).

Regarding Claims 3, 22, 39, 50, Patterson teaches all of the claimed limitations recited in Claims 1, 21, 38, and 49. Patterson does not teach wherein identifying the change in signal quality comprises identifying a change in a signal-to-noise ratio for the return link from the terminal.

Kim teaches identifying a change in a signal-to-noise ratio (Columns: 4 lines 54 – 67, 5 lines 1 – 21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Patterson with the signal-to-noise ratio of Kim as a means for measuring the link quality as taught by Kim.

Regarding Claim 4, Patterson in view of Kim teaches all of the claimed limitations recited in Claim 3. Kim further teaches wherein the return link signal-to-noise ratio includes both thermal noise and interference (Columns: 4 lines 54 – 67, 5 lines 1 – 21, typical noise in a radio environment comprises interference).

Regarding Claims 5, 23, 40, 51, Patterson in view of Kim teaches all of the claimed limitations recited in Claims 3, 22, 39, and 50. Patterson further teaches receiving a feedback signal at the terminal from the gateway, said feedback signal indicating at least one of the return link quality as measured at the gateway and the change in the return link quality as measured at the gateway (Section 0101, the

Art Unit: 2618

negotiation of the rate between the terminals and the gateway comprise a feedback signal indicating link quality and change in said link quality).

Regarding Claims 6, 24, 41, 52 Patterson in view of Kim teaches all of the claimed limitations recited in Claims 3, 22, 39, and 50. Patterson further teaches measuring a forward link quality at the terminal for a forward link from the gateway through the satellite to the terminal; and approximating the return link quality at the gateway based on the forward link quality (Sections: 0101, 0103, the link conditions include the condition or quality of the forward link).

Regarding Claims 7, 25, 42, 53 Patterson in view of Kim teaches all of the claimed limitations recited in Claims 3, 21, 39, and 50. Patterson further teaches reducing the data rate if the return link quality has fallen below a first threshold; and increasing the data rate if the return link quality has risen above a second threshold (Sections: 0101, 0103).

Regarding Claims 8, 54, Patterson in view of Kim teaches all of the claimed limitations recited in Claims 3, 50. Patterson further teaches transmitting a bit of the message for a longer duration of time to reduce the data rate; and transmitting a bit of the message for a shorter duration of time to increase the data rate (Sections: 0101, 0103, lower data rates comprise transmitting bits for a longer duration and higher data rates comprise transmitting bits for a shorter duration).

Regarding Claim 9, Patterson in view of Kim teaches all of the claimed limitations recited in Claim 3. Patterson further teaches adjusting the data rate to one of a set of discrete data-rate-to-carrier-bandwidth ratios (Sections: 0101, 0103, the carrier will be

modulated with an information signal, which is transmitted at a particular data rate, thus providing a signal with a particular bandwidth, each data rate will therefore correspond to a particular data-rate-to-carrier-bandwidth-ratio).

7. Claims 17 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (US 2003/0050008) in view of Hogberg et al. (US 6,198,730).

Regarding Claims 17, 34, Patterson teaches all of the claimed limitations recited in Claims 1, 21. Patterson further teaches a messaging time slot among a plurality of time slots in each of a series of time frames (Section 0100).

Patterson does not teach initiating the message at a random point within a particular messaging time slot.

Hogberg teaches a messaging time slot among a plurality of time slots in each of a series of time frames, the method further comprising initiating the message at a random point within a particular messaging time slot (Column 4 lines 5 – 9, the CDMA time slots are the messaging time slots, said time slots allow initiation of messages at random points within said time slots).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the TD-CDMA air interface as an alternative means for supporting multiple subscribers as taught by Hogberg.

Art Unit: 2618

8. Claims 15 – 16, 18 – 20, 32 – 33, 35 – 37, 45 – 47, and 57 – 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (US 2003/0050008) in view of Xie et al. (US 6,781,978).

Regarding Claims 15, 32, 45, 57 Patterson teaches all of the claimed limitations recited in Claims 1, 21, 38, and 49. Patterson further teaches a messaging time slot among a plurality of time slots in each of a series of time frames (Section 0100).

Patterson does not teach suspending the message if a current messaging time slot in a current time frame expires before the message is complete; and resuming the message in a subsequent messaging time slot in a subsequent time frame.

Xie teaches suspending the message if a current messaging time slot in a current time frame expires before the message is complete; and resuming the message in a subsequent messaging time slot in a subsequent time frame (Cols. 4 lines 43 – 67, 5 lines 1 – 13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Patterson with the features of Xie for the purpose of minimizing message collisions without degrading channel utilization efficiency as taught by Xie.

Regarding Claims 16, 33, 58 Patterson in view of Xie teaches all of the claimed limitations recited in Claims 15, 32, 57. Xie further teaches resuming the message at a beginning of the subsequent messaging time slot in the subsequent time frame (Cols. 4 lines 43 – 67, 5 lines 1 – 13).

Regarding Claims 18, 35, 46, 59 Patterson teaches all of the claimed limitations recited in Claims 1, 21, 38, and 49. Patterson further teaches wherein the return link comprises a messaging time slot among a plurality of time slots in each of a series of time frames (Section 0100).

Patterson does not teach determining that the message will span more than a particular number of durations of a messaging time slot; and transmitting the message beyond an end of a messaging time slot in a particular frame until the message is complete.

Xie teaches determining that the message will span more than a particular number of durations of a messaging time slot; and transmitting the message beyond an end of a messaging time slot in a particular frame until the message is complete (Cols. 4 lines 43 – 67, 5 lines 1 – 13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Patterson with the features of Xie for the purpose of minimizing message collisions without degrading channel utilization efficiency as taught by Xie.

Regarding Claims 19, 36, 47, Patterson in view of Xie teaches all of the claimed limitations recited in Claims 18, 35, 38. Xie further teaches comparing a duration of the message at the current data rate to a length threshold, said length threshold comprising the particular number of durations (Cols. 4 lines 43 – 67, 5 lines 1 – 13).

Regarding Claims 20, 37 Patterson teaches all of the claimed limitations recited in Claims 18, 35. Patterson further teaches comparing a current data-rate-to-

Art Unit: 2618

bandwidth ratio for the message to a threshold data-rate-to-bandwidth ratio (Sections: 0100 – 0101, 0103, the carrier will be modulated with an information signal, which is transmitted at a particular data rate, thus providing a signal with a particular bandwidth, each data rate will therefore correspond to a particular data-rate-to-carrier-bandwidth-ratio, in order to maintain link availability there will be a data-rate-to-carrier-bandwidth threshold that will need to be met thus there will be comparisons between the current data-rate-to-bandwidth, which is a part of the current link conditions, and said threshold).

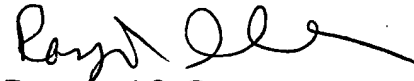
Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond S. Dean whose telephone number is 571-272-7877. The examiner can normally be reached on Monday-Friday 6:00-2:30.

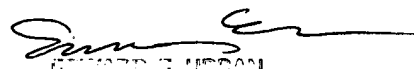
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2618

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Raymond S. Dean
November 19, 2006



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